



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,153	03/29/2004	Zheng-Hong Lu	14657	8479

293 7590 06/02/2006

Ralph A. Dowell of DOWELL & DOWELL P.C.
2111 Eisenhower Ave
Suite 406
Alexandria, VA 22314

EXAMINER

FERGUSON, LAWRENCE D

ART UNIT PAPER NUMBER

1774

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,153

Applicant(s)

LU ET AL.

Examiner

Lawrence D. Ferguson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/24/06, 10/07/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION***Obvious Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-46 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of copending Application No. 11/260,469. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both include a layered structure including a fullerene layer, a layer comprising lithium fluoride and an electrically conductive layer. Although Application No. 11/260,469, does not explicitly teach the layered structure exhibiting Ohmic behavior, because Application No. 11/260,469 teaches a layered structure

Art Unit: 1774

comprising the same layers, having the same function as the instantly claimed invention, it is inherent for the layers to exhibit Ohmic behavior.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Obvious Double Patenting

3. Claims 1-46 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-39 of copending Application No. 11/257,393. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both include a layered structure including a fullerene layer, a layer comprising lithium fluoride and an electrically conductive layer. Although Application No. 11/257,393, does not explicitly teach the layered structure exhibiting Ohmic behavior, because Application No. 11/257,393 teaches a layered structure comprising the same layers, having the same function as the instantly claimed invention, it is inherent for the layers to exhibit Ohmic behavior.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections – 35 USC § 103(a)

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1774

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-24, 26-31, 33-38 and 41-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czerw et al. (U.S. 6,833,201).

Czerw discloses an electroluminescent (EL) device comprising a layered structure including a substrate, fullerene layer (C_{60}) bonded with a polymeric material, LiF layer, having a thickness of 0.5nm and aluminum layer. Czerw further discloses an EL device comprising a substrate anode electrode layer, electron transport layer, cathode electron layer on the electron transport layer, a hole transport layer having a thickness of 80nm and a layer of light emissive material between the anode electrode layer and electron transport layer (column 6, lines 39-65; column 7, lines 14-33 and Figure 3) where the cathode layer comprising a low work function material LiAl (Figure 3). In claim 37, the phrase, "thickness selected to produce pre-selected optical interference to generate multiple colors, colors of desired wavelength, and optimum optical power output" constitutes a 'capable of' limitation and that such a recitation that an element is 'capable of' performing a function is not a positive limitation but only requires the ability to so perform. In claim 46 the phrase, "for applying a voltage across the anode electrode layer and the cathode electrode layer" is an intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is

Art Unit: 1774

capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Because Czerw has a layered structure with equivalent materials as the claimed invention, it would have been obvious to one of ordinary skill in the art for the layered structure comprising fullerene, LiF and aluminum to exhibit Ohmic behavior across the layers.

Claim Rejections – 35 USC § 103(a)

6. Claims 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czerw et al. (U.S. 6,833,201) in view of Hung et al (U.S. 6,069,442).

Czerw is relied upon for instant claims 1 and 15. Czerw does not explicitly teach a calcium fluoride compound or tris-(8-hydroxyquinoline)aluminum(Alq). Hung teaches an EL device comprising tris-(8-quinolinato)Aluminum (Alq) along with a fluoride layer which comprises either lithium fluoride or calcium fluoride (column 3, lines 42-50 and column 4, lines 25-35). Czerw and Hung are both directed to EL devices with layered materials. Therefore, it would have been obvious to one of ordinary skill in the art to include the tris-(8-quinolinato) Aluminum (Alq) and calcium fluoride in the EL device of Czerw to substantially lower the barrier height of the electron transport (column 4, lines 25-35).

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Smith (U.S. 420,746) teaches ohmic conductive layers along with a fluoride insulating material and fullerenes (column 3, lines 29-44).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 1774

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

L. Ferguson
Patent Examiner
AU 1774


RENA DYE
SUPERVISORY PATENT EXAMINER
A.U. 1774 5/20/04